

ABSTRACT OF THE DISCLOSURE

## METHOD AND APPARATUS FOR NOISE

An apparatus for creating an appearance of texture in a computer image. The apparatus includes a computer. The apparatus includes a mechanism for inputting a point  $\{x_d\}$  in D-dimensional geometric space RD described via D M bit quantities  $i_d$  and D N bit quantities  $u_d$ , where  $i_d$  are M bit representations of greatest integers not  $> x_d$  and  $u_d$  are N bit representations of remainders  $(x_d - i_d)$ , where M and N are integers  $\geq 4$ , in the computer. The apparatus includes a mechanism for computing a pseudo-random hash value at each vertex of a unit cube C surrounding the point. The apparatus includes a mechanism for computing a contribution from each vertex using the hash-value. The apparatus includes a mechanism for combining with the computer the contribution from each vertex into a single interpolated result. A method for creating an appearance of texture in a computer image. The method includes the steps of inputting a point  $\{x_d\}$  in D-dimensional geometric space RD described via D M bit quantities  $i_d$  and D N bit quantities  $u_d$ , where  $i_d$  are M bit representations of greatest integers not  $> x_d$  and  $u_d$  are N bit representations of remainders  $(x_d - i_d)$ , where M and N are integers  $\geq 4$  in a computer. Then there is the step of computing a pseudo-random hash value at each vertex of a unit cube C surrounding the point. Next there is the step of computing a contribution from each vertex using the hash-value. Then there is the step of combining with the computer the contribution from each vertex into a single interpolated result.